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## PATENT SPECIFICATION

NO DRAWINGS

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1078,723



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## COMPLETE SPECIFICATION

## Improvements relating to Grouting Preparations based on Epoxy Resins

We THE BRITISH CERAMIC RESEARCH ASSOCIATION, a Body Corporate organised under the British Law, of Queens Road, Penkhull, Stoke-on-Trent, Staffordshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to preparations for use as grouting mediums in filling up the joints between ceramic tiles after these have been fixed to a wall or other surface.

The invention is related to that which forms the subject of our co-pending application No. 26265/65 (Serial No. 1078722), which refers to a water-free tile grout or fixative comprising a liquid epoxy resin which is dispersible in water due to the addition of a wetting agent to the formulation.

Known types presently in use as grouting mediums include those of a resinous nature but the resins used are of such a character that the grout has to be extruded from a gun into the tile joints, and when deposited the medium cannot be wiped or manipulated in any way, but has to be left alone until the curing of the resinous medium has taken place. In consequence the operation is not only a highly skilled one, but it also takes up considerable time. Materials which require baking in order to achieve full curing are known, but these are unsuitable for use

as tile grouts or fixatives, which need to cure at ordinary room temperatures.

The invention consists in a wetting-agent- and water-free-composition comprising a liquid epoxy resin based on glycerol and epichlorohydrin, a curing agent, a filler and a pigment, when used as a tile grout the formulation being of a water-dispersible character.

A suitable glycerol-based resin is that known as Epikote 812. In some cases this may be mixed with not more than an equal proportion of liquid epoxy resins based on bis-phenol-A, such as Epikote 828 or 815 or Araldite MY 753.

The curing agent for the resin must be of the room temperature type, examples being Synolide 960, Versamid 125 or 140, or Triethylene tetramine, when grouting tiled walls.

The mineral filler for the formulation may be selected from ground molochite, ground sand, ground fused silica, ground glass, calcium carbonate, slate powder, talc, ground alumina, barytes, china clay, used singly or in admixture and the colour may be varied by the addition of suitable pigments usually in less quantity than the mineral filler.

Specific examples will now be given by way of illustration, it being understood that the invention is not restricted to these details. The parts are by weight in all cases.

## EXAMPLE No. 1.

Resin.	Epikote 812.	40 parts.
Curing Agent.	Synolide 960.	28 parts.
Filler.	Molochite 6.	160 parts.
Pigment.	Titanium Dioxide	10 parts.

## EXAMPLE No. 2.

5	Resins.	Epikote 812.	20 parts.
		Epikote 815.	20 parts.
	Curing Agent.	Synolide 960.	26 parts.
	Filler.	Molochite 6.	160 parts.
	Pigment.	Titanium Dioxide.	10 parts.

10 In a convenient procedure the pigment is dispersed in some of the resin and a quantity of this is then mixed with the remaining resin and some of the filler. A separate mixture is made from the curing agent and the rest of the filler. Normally these two mixtures are packed separately and the contents of the two packs will usually be mixed together on the site when required for use.

20 Alternatively the product may be marketed as three components, viz. one consisting of the resin and pigment, another the curing agent, and the third the dry mineral filler. In practice the two liquid components are well mixed prior to the addition of the dry mineral filler. This procedure considerably reduces the risk of failure to cure due to poor mixing of the resin and curing agent which may occur when all three components are mixed simultaneously.

30 In order to produce prefabricated panels the tiles can also be laid out flat in a jig on a suitable non-stick surface such as polythene sheeting, and grouted in by exactly the same technique as is used to grout an already fixed installation.

35 Because these improved grouting mediums are dispersible in water they can easily be applied to tile joints by means of a sponge, pad or similar device, and any surplus can be wiped off immediately from the surfaces of the tiles. The need for a grouting gun is obviated and the operation is simplified and expedited.

It will be understood that water is not an ingredient in the preparations in accordance with the invention.

45 The names EPIKOTE, ARALDITE,

SYNOLIDE and VERSAMID are Registered Trade Marks.

## WHAT WE CLAIM IS:—

1. A wetting-agent and water-free-composition comprising a liquid epoxy resin based on glycerol and epichlorohydrin, a curing agent, a filler and a pigment, when used as a tile grout, the formulation being a water-dispersible character. 50
2. A tile grout comprising a formulation as claimed in claim 1 but having also a resin content of glycerol-based resin and not more than an equal proportion of resin based on bis-phenol-A and epichlorohydrin. 55
3. A tile grout substantially as herein described in Example No. 1. 60
4. A tile grout substantially as herein described in Example No. 2.
5. A tile grout according to any of the preceding claims prepared by dispersing the pigment in some of the resin, mixing a quantity of this with the remaining resin and some of the filler, and making a separate mixture from the curing agent and the rest of the filler, packing the two mixtures separately for mixing together when required for use, and mixing the two mixtures. 65
6. A tile grout according to any of the preceding claims 1—4 prepared by mixing three separate components, one consisting of the resin, together with the pigment, a second consisting of the curing agent, and a third the dry mineral filler. 70 75

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